

AJ
Cont'd

-4-

about 50 nm and effectively no particles with a diameter greater than about 5 times the average diameter.

Please add the following claims:

AJ

23. (New) The polishing composition of claim 15 wherein the particles are dispersed in an aqueous solution.
24. (New) The polishing composition of claim 15 wherein the particles are dispersed in a nonaqueous solution.
25. (New) A method of smoothing a surface comprising polishing the surface with the polishing composition of claim 15.

REMARKS

Claims 1-4, 6-10, 12-15 and 23-25 remain for consideration. These claim in their present form were pending in the parent application, except for new claims 24-25. The claims were canceled to advance prosecution of the parent application, which has been allowed. The specification has been amended to update references to copending applications.

The amendment of claim 1 is supported by the specification, for example, at page 18, lines 25-29. The amendment of claim 9 is supported by the specification, for example, at page 2, lines 20-25. The amendment of claim 15 is supported by the specification, for example, at page 18, lines 25-29 and page 20, lines 4-12. New claims 23 and 24 are supported by the specification, for example, at page 22, lines 16-17. New claim 25 is supported by the specification, for example, at page 3, lines 3-8. No new matter is introduced by the amendments or by the new claims.

Applicants respectfully request favorable consideration of the pending claims.

SEARCHED
SERIALIZED
INDEXED
FILED

The Director of the Patent and Trademark Office is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

WESTMAN, CHAMPLIN & KELLY, P.A.

By: Peter J. Dandi

Peter S. Dardi, Ph.D., Reg. No. 39,650

Suite 1600 - International Centre

900 Second Avenue South

Minneapolis, Minnesota 55402-3319

Phone: (612) 334-3222 Fax: (612) 334-3312

PSD:nhw

କାହାର କାହାର କାହାର କାହାର କାହାର କାହାର କାହାର କାହାର

MARKED-UP AMENDMENTS

IN THE SPECIFICATION

After the title on the first page of the specification, the following was added:

Sam B

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of copending and commonly assigned U.S. Patent Application Serial No. 08/961,735 to Kambe et al., entitled "Abrasive Particles For Surface Polishing," incorporated herein by reference.--

The paragraph at page 14, lines 23-28 has been amended as follows.

A apparatus similar to laser pyrolysis embodiment 100 has been used to produce a variety of vanadium oxide nanoparticles in different oxidation states. These are described in commonly assigned U.S. Patent Application Serial Number 08/897,778, filed July 21. 1997, now U.S. Patent 6,106,798, incorporated herein by reference.

The paragraph at page 14, lines 29 to page 15, line 4 has been amended as follows:

An alternative design of a laser pyrolysis apparatus has been described. See, commonly assigned U.S. Patent Application No. 08/808,850 now U.S. Patent 5,958,348, entitled "Efficient Production of Particles by Chemical Reaction," incorporated herein by reference. This alternative design is intended to facilitate production of commercial quantities of particles by laser pyrolysis. A variety of configurations are described for injecting the reactant materials into the reaction chamber.

The paragraph at page 16, line 32 to page 17, line 2 has been amended as follows:

As noted above, properties of the product particles can be modified by further processing. For example, oxide nanoscale particles can be heated in an oven in an oxidizing environment or an inert environment to alter the oxygen content and/or crystal structure of the metal oxide. The processing of metal oxide nanoscale particles in an oven is further discussed in commonly assigned, U.S. Patent Application Ser. No. 08/897,903 now U.S. Patent 5,989,514, filed July 21, 1997, entitled "Processing of Vanadium Oxide Particles With Heat," incorporated herein by reference.

The paragraph at page 19, lines 8-24 has been amended as follows:

Because of their small size, the particles tend to form loose agglomerates due to van der Waals and other electromagnetic forces between nearby particles. Nevertheless, the nanometer scale of the particles (i.e., primary particles) is clearly observable in transmission electron micrographs of the particles. For crystalline particles, the particle size generally corresponds to the crystal size. The particles generally have a surface area corresponding to particles on a nanometer scale as observed in the micrographs. Furthermore, the particles manifest unique properties due to their small size and large surface area per weight of material. For example, TiO_2 nanoparticles generally exhibit altered absorption properties based on their small size, as described in commonly assigned and simultaneously filed U.S. Patent Application serial number 08/962,515 now U.S. Patent 6,099,798, entitled "Ultraviolet Light Block and Photocatalytic Materials," incorporated herein by reference.

IN THE CLAIMS

Claims 5, 11 and 16-22 have been canceled. Claims 1, 9 and 15 have been amended as follows:

1. (Amended) A polishing composition comprising a dispersion of particles, the particles comprising metal compounds and having an average particle diameter from about 5 nm to about [200] 50 nm and a distribution of diameters such that at least about 95 percent of the particles have a diameter greater than about 60 percent of the average diameter and less than about 140 percent of the average diameter.

9. (Amended) [A] The polishing composition of claim 1 [comprising a dispersion of particles, the particles comprising metal compounds with an average particle diameter from about 5 nm to about 200 nm and] having a single crystalline phase with a uniformity of at least about 90 percent by weight.

15. (Twice Amended) A polishing composition comprising a dispersion of particles, the particles comprising metal compounds or silicon compounds with an average particle diameter from about 5 nm to about [200] 50 nm and effectively no particles with a diameter greater than about 5 times the average diameter [1 micron].

New claims 23-25 have been added:

--23. The polishing composition of claim 15 wherein the particles are dispersed in an aqueous solution.

24. The polishing composition of claim 15 wherein the particles are dispersed in a nonaqueous solution.

25. A method of smoothing a surface comprising polishing the surface with the polishing composition of claim 15.--